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Cell Lines

ATCC Number:	**HTB-22** Order this item	**Price:**	**$179.00**
Designation:	**MCF7 [MCF-7]**	**Depositors:**	CM McGrath
Biosafety Level:	1	**Shipped:**	frozen
Medium & Serum:	See Propagation	**Growth Properties:**	adherent
Organism:	*Homo sapiens* (human)	**Morphology:**	epithelial PHOTO

Source:
Organ: mammary gland; breast
Cell type: epithelial
Disease: adenocarcinoma
Derived from metastic site: pleural effusion

Cellular Products: insulin-like growth factor binding proteins (IGFBP) BP-2; BP-4; BP-5

Permits/Forms: In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.

Related Cell Culture Products

Receptors:	estrogen receptor, positive, expressed
Antigen Expression:	Blood Type O; Rh+
DNA Profile (STR):	Amelogenin: X CSF1PO: 10 D13S317: 11 D16S539: 11,12 D5S818: 11,12 D7S820: 8,9

h cc g e ch g g e cf e ce e cf

	THO1: 6 TPOX: 9,12 vWA: 14,15
Cytogenetic Analysis:	modal number = 82; range = 66 to 87. The stemline chromosome numbers ranged from hypertriploidy to hypotetraploidy, with the 2S component occurring at 1%. There were 29 to 34 marker chromosomes per S metaphase; 24 to 28 markers occurred in at least 30% of cells, and generally one large submetacentric (M1) and 3 large subtelocentric (M2, M3, and M4) markers were recognizable in over 80% of metaphases. No DM were detected. Chromosome 20 was nullisomic and X was disomic.
Isoenzymes:	AK-1, 1; ES-D, 1-2; G6PD, B; GLO-I, 1-2; PGM1, 1-2; PGM3, 1
Age:	69 years adult
Gender:	female
Ethnicity:	Caucasian
Comments:	The **MCF7** line retains several characteristics of differentiated mammary epithelium including ability to process estradiol via cytoplasmic estrogen receptors and the capability of forming domes. Contains the Tx-4 oncogene. Growth of **MCF7** cells is inhibited by tumor necrosis factor alpha (TNF alpha). Secretion of IGFBP's can be modulated by treatment with anti-estrogens. The cells express the WNT7B oncogene [PubMed: 8168088].
Propagation:	**ATCC complete growth medium:** Minimum essential medium (Eagle) with 2 mM L-glutamine and Earle's BSS adjusted to contain 1.5 g/L sodium bicarbonate, 0.1 mM non-essential amino acids and 1 mM sodium pyruvate and supplemented with 0.01 mg/ml bovine insulin, 90%; fetal bovine serum, 10% **Temperature:** 37.0 C **Atmosphere:** air, 95%; carbon dioxide (CO2), 5%
Subculturing:	**Protocol:** 1. Remove and discard culture medium. 2. Briefly rinse the cell layer with 0.25% (w/v) Trypsin- 0.53 mM EDTA solution to remove all traces of serum which contains trypsin inhibitor. 3. Add 2.0 to 3.0 ml of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes). Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal. 4. Add 6.0 to 8.0 ml of complete growth medium and aspirate cells by gently pipetting. 5. Add appropriate aliquots of the cell suspension to new culture vessels. 6. Incubate cultures at 37°C. **Subcultivation Ratio:** A subcultivation ratio of 1:3 to 1:6 is recommended **Medium Renewal:** 2 to 3 times per week
Preservation:	**Freeze Medium:** Complete growth medium supplemented with 5% (v/v) DMSO **Storage temperature:** liquid nitrogen vapor phase
Doubling Time:	29 hrs
Related Products:	Recommended medium (without the additional supplements or serum described under ATCC Medium) - ATCC 30-2003 recommended serum - ATCC 30-2020 purified DNA - ATCC HTB-22D purified RNA - ATCC HTB-22R
References:	21405: Sugarman BJ , et al. Recombinant human tumor necrosis factor-alpha: effects on proliferation of normal and transformed cells in vitro. Science 230: 943-945, 1985. PubMed: 3933111 22871: Takahashi K , Suzuki K . Association of insulin-like growth-factor-I-induced DNA synthesis with phosphorylation and nuclear exclusion of p53 in human breast cancer MCF-7 cells. Int. J. Cancer 55: 453-458, 1993. PubMed: 8375929 23046: Brandes LJ , Hermonat MW . Receptor status and subsequent sensitivity of subclones of **MCF-7** human breast cancer cells surviving exposure to diethylstilbestrol. Cancer Res. 43: 2831-2835, 1983. PubMed: 6850594

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Cell Lines

ATCC Number:	**HTB-38** Order this item	**Price:**	**$179.00**
Designation:	**HT-29**	**Depositors:**	J Fogh
Biosafety Level:	1	**Shipped:**	frozen
Medium & Serum:	See Propagation	**Growth Properties:**	adherent
Organism:	*Homo sapiens* (human)	**Morphology:**	epithelial PHOTO
Source:	**Organ:** colon **Disease:** colorectal adenocarcinoma		
Cellular Products:	secretory component of IgA; carcinoembryonic antigen (CEA); transforming growth factor beta binding protein; mucin		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Cell Culture Products

Restrictions:	The cells are distributed for research purposes only. The Memorial Sloan-Kettering Cancer Center releases the line subject to the following: 1.) The cells or their products must not be distributed to third parties. Commercial interests are the exclusive property of Memorial Sloan-Kettering Cancer Center. 2.) Any proposed commercial use of these cells must first be negotiated with The Director, Office of Industrial Affairs, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021; phone (212) 639-6181; FAX (212) 717-3439.
Isolation:	**Isolation date:** 1964.
Receptors:	urokinase receptor (u-PAR); vitamin D (moderate expression) human adrenergic alpha2A [23560]

Virus Susceptibility:	human immunodeficiency virus (HIV, LAV)
Tumorigenic:	Yes, in nude mice; forms well differentiated adenocarcinoma consistent with colonic primary (grade I); tumors also form in steroid treated hamsters
Oncogene:	myc +; ras +; myb +; fos +; sis +; p53 +; abl -; ros -; src -
Antigen Expression:	Blood Type A; Rh+; HLA A1, A3, B12, B17, Cw5
DNA Profile (STR):	Amelogenin: X CSF1PO: 11,12 D13S317: 11,12 D16S539: 11,12 D5S818: 11,12 D7S820: 10 THO1: 6,9 TPOX: 8,9 vWA: 17,19
Cytogenetic Analysis:	modal number = 71; range = 68 to 72. The stemline chromosome number is hypertriploid with the 2S component occurring at 2.4%. Seventeen marker chromosomes are found in most metaphases, generally in single copy per chromosome. The marker designations are: M1p-(=t(3p-;?) with a deleted short arm), t(7q;?), t(10q;?), i(13q), 19q+a; M6, ?t(8q;9q-), ?Xp, M9, 6q+, t (13;?)a, t(13;?)b, 19q+b, M14, M15, 15p+, and Xq-. Chromosome 13 is nullisomic and chromosomes 8 and 14 are generally monosomic. No Y chromosome was detected by QM band analysis.
Isoenzymes:	AK-1, 1; ES-D, 1; G6PD, B; GLO-I, 1-2; Me-2, 1; PGM1, 1-2; PGM3, 1-2
Age:	44 years adult
Gender:	female
Ethnicity:	Caucasian
Comments:	Ultrastructural features include microvilli, microfilaments, large vacuolated mitochondria with dark granules, smooth and rough ER with free ribosomes, lipid droplets, few primary and many secondary lysosomes. No virus particles. **HT-29** cells express urokinase receptors, but do not have detectable plasminogen activator activity. There is a G -> A mutation in codon 273 of the p53 gene resulting in an Arg -> His substitution. The p53 antigen is overproduced. The cells are negative for CD4, but there is cell surface expression of galactose ceramide (a possible alternative receptor for HIV). The line is positive for expression of c-myc, K-ras, H-ras, N-ras, Myb, sis and fos oncogenes. N-myc oncogene expression was not detected.
Propagation:	**ATCC complete growth medium:** McCoy's 5a medium with 1.5 mM L-glutamine, 90%; fetal bovine serum, 10% **Temperature:** 37.0 C
Subculturing:	**Protocol:** 1. Remove and discard culture medium. 2. Briefly rinse the cell layer with 0.25% (w/v) Trypsin- 0.53 mM EDTA solution to remove all traces of serum which contains trypsin inhibitor. 3. Add 2.0 to 3.0 ml of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes). Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal. 4. Add 6.0 to 8.0 ml of complete growth medium and aspirate cells by gently pipetting. 5. Add appropriate aliquots of the cell suspension to new culture vessels. 6. Incubate cultures at 37°C. **Subcultivation Ratio:** A subcultivation ratio of 1:3 to 1:8 is recommended

	Medium Renewal: 2 to 3 times per week
Preservation:	**Freeze Medium:** Complete growth medium, 95%; DMSO, 5% **Storage temperature:** liquid nitrogen vapor temperature
Related Products:	Recommended medium (without the additional supplements or serum described under ATCC Medium) - ATCC 30-2007 recommended serum - ATCC 30-2020 derivative - ATCC CCL-218 purified DNA - ATCC HTB-38D
References:	18385: Didier ES , et al. Characterization of Encephalitozoon (Septata) intestinailis isolates cultured from nasal mucosa and bronchoalveolar lavage fluids of two AIDS patients. J. Eukaryot. Microbiol. 43: 34-43, 1996. PubMed: 8563708 21869: , editors. Human tumor cells in vitro. New York: Plenum Press; 1975, pp. 115-159. 22411: Chen TR , et al. WiDr is a derivative of another colon adenocarcinoma cell line, HT-29. Cancer Genet. Cytogenet. 27: 125-134, 1987. PubMed: 3472642 22536: Fogh J , et al. Absence of HeLa cell contamination in 169 cell lines derived from human tumors. J. Natl. Cancer Inst. 58: 209-214, 1977. PubMed: 833871 22539: Fogh J , et al. One hundred and twenty-seven cultured human tumor cell lines producing tumors in nude mice. J. Natl. Cancer Inst. 59: 221-226, 1977. PubMed: 327080 22564: Adachi A , et al. Productive, persistent infection of human colorectal cell lines with human immunodeficiency virus. J. Virol. 61: 209-213, 1987. PubMed: 3640832 22570: Fantini J , et al. Human colon epithelial cells productively infected with human immunodeficiency virus show impaired differentiation and altered secretion. J. Virol. 66: 580-585, 1992. PubMed: 1727501 22807: Butzow R , et al. A 60-kD protein mediates the binding of transforming growth factor-beta to cell surface and extracellular matrix proteoglycans. J. Cell Biol. 122: 721-727, 1993. PubMed: 8335695 22861: Trainer DL , et al. Biological characterization and oncogene expression in human colorectal carcinoma cell lines. Int. J. Cancer 41: 287-296, 1988. PubMed: 3338874 22866: Hanski C , et al. Tumorigenicity, mucin production and AM-3 epitope expression in clones selected from the **HT-29** colon carcinoma cell line. Int. J. Cancer 50: 924-929, 1992. PubMed: 1372882 22867: Reiter LS , et al. The role of the urokinase receptor in extracellular matrix degradation by **HT29** human colon carcinoma cells. Int. J. Cancer 53: 444-450, 1993. PubMed: 8381394 22996: Barnett SW , et al. Characterization of human immunodeficiency virus type 1 strains recovered from the bowel of infected individuals. Virology 182: 802-809, 1991. PubMed: 2024498 23105: Shabahang M , et al. 1,25-Dihydroxyvitamin D3 receptor as a marker of human colon carcinoma cell line differentiation and growth inhibition. Cancer Res. 53: 3712-3718, 1993. PubMed: 8393379 23154: Lesuffleur T , et al. Differential expression of the human mucin genes MUC1 to MUC5 in relation to growth and differentiation of different mucus-secreting HT- 29 cell subpopulations. J. Cell Sci. 106: 771-778, 1993. PubMed: 8308060 23226: Pollack MS , et al. HLA-A, B, C and DR alloantigen expression on forty-six cultured human tumor cell lines. J. Natl. Cancer Inst. 66: 1003-1012, 1981. PubMed: 7017212 23335: Fantini J , et al. Infection of colonic epithelial cell lines by type 1 human immunodeficiency virus is associated with cell surface expression of galactosylceramide, a potential alternative gp120 receptor. Proc. Natl. Acad. Sci. USA 90: 2700-2704, 1993. PubMed: 8464878 23560: Devedjian JC , et al. Regulation of the alpha 2A-adrenergic receptor in the **HT29** cell line. Effects of insulin and growth factors. J. Biol. Chem. 266: 14359-14366, 1991. PubMed: 1677644 25093: Santoro IM , Groden J . Alternative splicing of the APC gene and its association with terminal differentiation. Cancer Res. 57: 488-494, 1997. PubMed: 9012479 32248: Bermudez LE , et al. Exposure to low oxygen tension and increased osmolarity enhance the ability of Mycobacterium avium to enter intestinal epithelial **(HT-29)** cells. Infect. Immun. 65: 3768-3773, 1997. PubMed: 9284150 32265: Tsao H , et al. Novel mutations in the p16/CDKN2A binding region of the Cyclin-dependent Kinase-4 gene. Cancer Res. 58: 109-113, 1998. PubMed: 9426066 32282: Qian XC , Brent TP . Methylation hot spots in the 5' flanking region denote silencing of the O6-methylguanine-DNA methyltransferase gene. Cancer Res. 57: 3672-3677, 1997. PubMed: 9288770 32297: Morin PJ , et al. Apoptosis and APC in colorectal tumorigenesis. Proc. Natl. Acad. Sci. USA 93: 7950-7954, 1996. PubMed: 8755583 32376: White LJ , et al. Attachment and entry of recombinant norwalk virus capsids to

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Cell Lines

ATCC Number:	**HTB-26** Order this item	**Price:**	**$179.00**
Designation:	**MDA-MB-231**	**Depositors:**	R Cailleau
Biosafety Level:	1	**Shipped:**	frozen
Medium & Serum:	See Propagation	**Growth Properties:**	adherent
Organism:	*Homo sapiens* (human)	**Morphology:**	epithelial PHOTO

Source:
Organ: mammary gland; breast
Cell type: epithelial
Disease: adenocarcinoma
Derived from metastic site: pleural effusion

Permits/Forms: In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.

Related Cell Culture Products

Receptors:	epidermal growth factor (EGF), expressed transforming growth factor alpha (TGF alpha), expressed
Tumorigenic:	Yes, in ALS treated BALB/c mice, forms poorly differentiated adenocarcinoma (grade III) Yes, in nude mice, forms poorly differentiated adenocarcinoma (grade III)
DNA Profile (STR):	Amelogenin: X CSF1PO: 12,13 D13S317: 13 D16S539: 12 D5S818: 12 D7S820: 8,9 THO1: 7,9.3 TPOX: 8,9

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	vWA: 15,18
Cytogenetic Analysis:	The cell line is aneuploid female (modal number = 64, range = 52 to 68), with chromosome counts in the near-triploid range. Normal chromosomes N8 and N15 were absent. Eleven stable rearranged marker chromosomes are noted as well as unassignable chromosomes in addition to the majority of autosomes that are trisomic. Many of the marker chromosomes are identical to those shown in the karyotype reported by K.L. Satya-Prakash, et al.
Isoenzymes:	AK-1, 1; ES-D, 1; G6PD, B; GLO-I, 2; Me-2, 1-2; PGM1, 1-2; PGM3, 1
Age:	51 years adult
Gender:	female
Ethnicity:	Caucasian
Comments:	The cells express the WNT7B oncogene [PubMed: 8168088].
Propagation:	**ATCC complete growth medium:** Leibovitz's L-15 medium with 2 mM L-glutamine, 90%; fetal bovine serum, 10% **Temperature:** 37.0 C **Atmosphere:** air, 100%
Subculturing:	**Protocol:** 1. Remove and discard culture medium. 2. Briefly rinse the cell layer with 0.25% (w/v) Trypsin- 0.53 mM EDTA solution to remove all traces of serum that contains trypsin inhibitor. 3. Add 2.0 to 3.0 ml of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes). Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal. 4. Add 6.0 to 8.0 ml of complete growth medium and aspirate cells by gently pipetting. 5. Add appropriate aliquots of the cell suspension to new culture vessels. 6. Incubate cultures at 37°C without CO2. **Subcultivation Ratio:** A subcultivation ratio of 1:2 to 1:4 is recommended **Medium Renewal:** 2 to 3 times per week
Preservation:	**Freeze Medium:** Complete growth medium supplemented with 5% (v/v) DMSO **Storage temperature:** liquid nitrogen vapor phase
Related Products:	Recommended medium (without the additional supplements or serum described under ATCC Medium) - ATCC 30-2008 recommended serum - ATCC 30-2020 purified DNA - ATCC HTB-26D purified RNA - ATCC HTB-26R
References:	1206: Brinkley BR , et al. Variations in cell form and cytoskeleton in human breast carcinoma cells in vitro. Cancer Res. 40: 3118-3129, 1980. PubMed: 7000337 22182: Cruciger Q , et al. Morphological, biochemical and chromosomal characterization of breast tumor lines from pleural effusions. In Vitro 12: 331, 1976. 22429: Siciliano MJ , et al. Mutually exclusive genetic signatures of human breast tumor cell lines with a common chromosomal marker. Cancer Res. 39: 919-922, 1979. PubMed: 427779 22532: Cailleau R , et al. Breast tumor cell lines from pleural effusions. J. Natl. Cancer Inst. 53: 661-674, 1974. PubMed: 4412247 22656: Cailleau R , et al. Long-term human breast carcinoma cell lines of metastatic origin: preliminary characterization. In Vitro 14: 911-915, 1978. PubMed: 730202 22977: Bates SE , et al. Expression of the transforming growth factor-alpha/epidermal growth factor receptor pathway in normal human breast epithelial cells. Endocrinology 126: 596-607, 1990. PubMed: 2294006 23010: Dickstein B , et al. Increased epidermal growth factor receptor in an estrogen-responsive, adriamycin-resistant MCF-7 cell line. J. Cell. Physiol. 157: 110-118, 1993. PubMed: 8408230 23113: Huguet EL , et al. Differential expression of human Wnt genes 2, 3, 4, and 7B in human breast cell lines and normal and disease states of human breast tissue. Cancer Res. 54: 2615-2621, 1994. PubMed: 8168088 26321: Satya-Prakash KL , et al. Cytogenetic analysis on eight human breast tumor cell lines: high frequencies of 1q, 11q and HeLa-like marker chromosomes. Cancer Genet.

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